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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,372	09/25/2003	Motohiro Uchiyama	1418.1013	3360
21171	7590	05/17/2007		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER WANG, U LUN	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 05/17/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/669,372

Applicant(s)

UCHIYAMA ET AL.

Examiner

U-Lun Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/3/2005, 9/25/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. Claim 19 is objected to because of the following informalities:

Claim 19 includes the first step and the third step but not the second step.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 16 are rejected for the following reason:

Claim 4 recites the limitation of "when a **fault occurs** in the active path after a path recovery from a fault is detected, the fault detector sets the recovered path in the path table as an active path" in lines 2 – 4. It is not clear what are the relationship of the active path, the active path after a path recovery from a fault, and the recovered path in the path table. It is also not clear what is the relationship between the fault which occurs and the fault which is detected.

Claim 16 is similar to Claim 4 above and is not clear.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 3, 13, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 7,133,358 B2) in view of Pointurier ("Link Failure Recovery for MPLS Networks with Multicasting").

For claim 1, Kano discloses an ingress label switching router comprising: a path table for designating an active path from among a plurality of paths (Fig. 11 The LSP ID/Priority table) through which packets of an equivalence class are forwarded and for which priorities (Fig. 11, the ID/Priority Table (low, middle and high priority)) are set.

Kano does not disclose a fault detector for operating the active path by referring to the path table and for setting, when detecting a recovery of a path higher in priority than the active path, the recovered path in the path table as an active path.

Pointurier discloses a fault detector for operating the active path by referring to the path table and for setting, when detecting a recovery of a path higher in priority than the active path (Page 142. Section 5.2.4 Switchover and switchback. A PSL of an mLSP must perform when it detects the recovery of the protected path or when it is

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notified of the recovery of a link of the protected path. Note that a PSL, as shown in Figure 2.5 on page 46, is an ingress LSR according to Fig.1 of this instant application. The part which detects the recovery is the fault detector), the recovered path in the path table as an active path (official notice is taken here that when a plurality of paths are available, it is obvious for one skilled in the art to designate and set a path as the active path. The motivation is that the active path can be selected quickly).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Pointurier's disclosure to have a fault detector for operating the active path by referring to the path table and for setting, when detecting a recovery of a path higher in priority than the active path, the recovered path in the path table as an active path.

The motivation is that this is a simple and conventional method.

For claim 2, Sharma discloses the ingress label switching router as claimed in claim 1 wherein when detecting a path recovery from a fault, the fault detector immediately sets the recovered path in the path table as an active path (This is obvious as the recovered path has higher priority).

For claim 3, Kano as modified by Pointurier discloses all the subject matter except the ingress label switching router, when detecting a path recovery from a fault, the fault detector confirms the path recovery by testing the recovered path, and then sets the recovered path in the path table as an active path.

Official notice is taken here that it is a common practice for one skilled in the art to test the recovered path first before setting the recovered path in the path table as an active path.

The motivation is that this is a prudent way to confirm the recovery and ensure that the path is actually working.

For claim 13, Kano as modified by Pointurier discloses all the subject matter (see rejection of claim 1 above).

For claim 14, Kano as modified by Pointurier discloses all the subject matter (see rejection of claim 2 above).

For claim 15, Kano as modified by Pointurier discloses all the subject matter (see rejection of claim 3 above).

6. Claims 5, 6, 8, 9, 10, 12, 17, 18, 20, 21, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao et al. (US Patent 6,721,269 B2), hereafter referred as Cao, in view of Pointurier.

For claim 5, Cao discloses a relay label switching router (Fig. 1, LSRC) comprising: a path hop list (Fig. 6) for indicating a hop destination of a path (Fig. 6, Next Hop) through which a packet of an equivalence class (note that the table in Fig. 6 has a

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format as in Fig. 4 with FECID Forwarding Equivalence Class ID deleted from the table for convenience because they are the same. See Col. 10, lines 5 – 6. Packets with the same FEC ID in Fig. 4 will be forwarded in the same path) is forwarded; a message processor for registering the hop destination (Col. 7, line 59: LSRC process the ER-TLV) indicated in a received message (Col. 7, lines 54 – 58: To establish the ERLSP, the ingress router, LSRS, generates a Label Request Message, including the ER-TLV, and sends it to LSRC. The ER-TLV is a vector composed of three ER-hop TLVs, corresponding to the S/C, C/D and D/E hops. Note that this is a hop list) in the path hop list and for forwarding (Col. 8, lines 10 – 12: the Label Request Message including the ER-TLV <S/C, C/D> is passed by LSRC to LSRD) the message to a next hop destination without deleting the hop destination (Col. 8, lines 1 – 3: LSRC deletes the first ER-hop, S/C, from the ER-TLV. The ER-TLV is updated to <S/C, C/D>. Col. 8, lines 12 – 14: The process continues in a similar fashion at LSRD, with the incoming ER-TLV = <S/C, C/D> and the outgoing ER-TLV <D/E>. Note that the S/C hop ER-TLV is updated to <S/C, C/D>. The hop information S/C is not lost. It simply indicates that path will go from S/C to C/D as determined in LSRC). Cao also discloses a fault detector for notifying an identifier of a path (Fig. 6, ERLSP ID) in which a fault occurred to an ingress label switching router (Col. 3, lines 44 – 50: all the routers along the explicitly routed paths may monitor this information to quickly detect any path failures. If such a failure is detected, the router that first detects the failure propagates this information, inherently including ERLSP ID, to the source and sink routers. Note that the source router is the Ingress LSR).

Cao does not disclose a fault detector for notifying an identifier of a path in which a fault has recovered to an ingress label switching router.

Pointurier discloses (page 138. Section 5.2.3 Link failure and recovery notification) that when a node detects a link failure or a link recovery, it must notify the two PSLs of the mLSP of the event so that they can perform either a switchover in case of a link failure on the protected path or a switchback in case of a link recovery on the protected path. Note that the ingress LSR is a PSL.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Pointurier's disclosure to send a notification message to the ingress LSR.

The motivation is to pass path failure/recovery information back to the ingress LSR as only the Ingress LSR can initiate a path change.

For claim 6, Cao discloses the relay label switching router as claimed in claim 5 wherein the fault detector notifies an identifier, detected by the fault detector itself or notified by a downstream label switching router, of a path in which a fault has recovered to an upstream label switching router based on the path hop list (Col. 3, lines 44 – 50: all the routers along the explicitly routed paths may monitor this information to quickly detect any path failures. If such a failure is detected, the router that first detects the failure propagates this information, inherently including the ERLSP ID, to the source and sink routers).



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For claims 8, 12, 20 and 24, Cao discloses the relay label switching router as claimed in claim 5 wherein the message comprises a label request message (Col. 7, lines 54 – 56: To establish the ERLSP the ingress router, LSRS, generates a Label Request Message, including the ER-TLV, and sends it to LSRC).

For claim 9, Cao as modified by Pointurier has already disclosed all the subject matter (see rejection of claim 5 above) except the LSR is an egress LSR instead of a relay LSR. Cao further discloses the processing for an egress LSR (Col. 8, lines 15 – 37. Note that LSRE (Fig. 1) is an egress LSR).

For claims 10, 18 and 22, Cao as modified by Pointurier discloses all the subject matter (see rejection of claim 6 above).

For claim 17, Cao as modified by Pointurier discloses all the subject matter (see rejection of claim 5 above).

For claim 21, Cao as modified by Pointurier discloses all the subject matter (see rejection of claim 9 above).

7. Claims 7, 11, 19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao in view of Seo (US Patent 7,065,084 B2).

For claim 7, Cao discloses the relay label switching router as claimed in claim 5 wherein the message (Col. 7, lines 54 – 56: To establish the ERLSP the ingress router, LSRS, generates a Label Request Message and sends it to LSRC) includes an address of an ingress label switching router as a hop destination (Note that Path Vector TLV of Label Request message inherently includes LSR ID for every LSR on the path including the ingress LSR. The LSR ID is the IP address of the LSP), and the fault detector directly notifies a path recovery from a fault to the ingress label switching router (see rejection of claim 6 above. The Ingress LSRS in Fig. 1 is the immediate upstream router of LSRC. The fault detector at LSRC directly notifies a path recovery from a fault to the ingress label switching router).

Cao does not disclose the relay label switching router as claimed in claim 5 wherein the message processor registers the address associated with the path in the path hop list.

Seo discloses a LSR with a path profile (hop list), which includes address associated with the path (Fig. 4, Path Profile 200, ER-Hops 210, and IP Addr 211). The message processor inherently registers the path profile, when it processes (ER TLVs and Path Vector TLVs of) the received Label Request message.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Seo's disclosure to the LSR of Cao wherein the message processor registers the address associated with the path in the path hop list.

The motivation is to keep track of the path information in order to send upstream or downstream notification message in case of path failure.

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For claims 11, 19 and 23, Cao as modified by Seo discloses all the subject matter of the method (see rejection of claim 7 above).

### ***Conclusion***

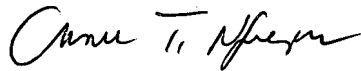
Any inquiry concerning this communication or earlier communications from the examiner should be directed to U-Lun Wang whose telephone number is (571) 270-1140. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

UW/  
5/9/2007



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